

# Work Order ID 108918

\*108918\*

Page 1

October-29-13 10:17:01 AM

Item ID: 649.5112

Accept

\*N900040100\*

Setup Start

\*NS1\*

Revision ID:

Stop

\*NS2\*

Item Name: Wiper Deflector

Start Date: 10/29/13 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 10/29/13 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Run Start

\*NR1\*

Approvals:

Process Plan: MLJ

Date: 13-10-29

Tooling:

Date:

Stop

\*NR2\*

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

~~649.4700~~

100 649.5100

Rev A 10/29/13

0.00

\*100\*

Bandsaw

Memo

0.00

on 13/11/20

20

Jeaspa Bandsaw

CUT AT 7.375" LONG

110

0.00

\*110\*

Outsource5

Memo

0.00

Outsource process - Machining

ISSUE P/O:

POSSIBLE SUPPLIER: ARCHER PRECISION

Certificate of conformaty required

see next pg.

115

Receive & Inspect for Damage & Mat'l Certs

0.00

\*115\*

Packaging

Memo

0.00

Packaging

19x 14-24

DAS  
28  
9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube <input type="checkbox"/></td> <td style="width:15%;">Crosstube <input type="checkbox"/></td> <td style="width:15%;">Water Jet <input type="checkbox"/></td> <td style="width:15%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Work Order ID 108918

November-25-13 10:32:36 AM

**\*108918\***

Page 1

Item ID: 649.5112 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Wiper Deflector  
 Start Date: 10/29/13 Start Qty: 20.00 **\*20\*** Cust Item ID:  
 Required Date: 10/29/13 Req'd Qty: 20.00 **\*20\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
649.5100	REV A

100

0.00

**\*100\***

Bandsaw  
Jeaspa Bandsaw

Memo  
CUT AT 7.375" LONG

0.00

*NP*

110

0.00

**\*110\***

Outsource5  
Outsource process - Machining

Memo  
ISSUE P/O: 22172  
POSSIBLE SUPPLIER:ETM

0.00

*13/26/25 mlt*

1-MANUFACTURE AS PER DWG  
 2- Black Anodize as per Dwg 647.960  
 Certificate of conformaty required



# Work Order ID 108918

**\*108918\***

Page 2

November-25-13 10:32:36 AM

Item ID: 649.5112 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Wiper Deflector  
Start Date: 10/29/13 Start Qty: 20.00 **\*20\*** Cust Item ID:  
Required Date: 10/29/13 Req'd Qty: 20.00 **\*20\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
115	Receive & Inspect for Damage & Mat'l Certs	0.00							
<b>*115*</b>									
Packaging	Memo	0.00				19x		14-2-4	DAS 26 9-89
Packaging									
117	QC6- Inspect dimensions to drawing	0.00							
<b>*117*</b>									
QC	Memo	0.00				(19)		14-02-05	DAS 9 9-89
Quality Control									
118		0.00							
<b>*118*</b>									
HandFinish	Memo	0.00							
Hand Finishing	REMOVE ALL PART MARKINGS								



# Work Order ID 108918

\*108918\*

Page 3

November-25-13 10:32:36 AM

Item ID: 649.5112 Accept \*N900040100\* Setup Start \*NS1\*  
Revision ID: Stop \*NS2\*  
Item Name: Wiper Deflector  
Start Date: 10/29/13 Start Qty: 20.00 \*20\* Cust Item ID:  
Required Date: 10/29/13 Req'd Qty: 20.00 \*20\* Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
125		0.00				19			OK 14/02/27
*125*									
SprayPaint	Memo	0.00							
Spray Painting	PRIME AS PER DWG, SEE NOTE #2								
135	QC14- Inspect Spray Paint	0.00				19			14-02-28
*135*									
QC	Memo	0.00							
Quality Control									
170	Identify as per dwg & Stock Location 81419.	0.00				19x		14-33	DAS
*170*									28
Packaging	Memo	0.00							9-89
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***								

Work Order ID 108918

\*108918\*

Page 4

November-25-13 10:32:36 AM

Item ID: 649.5112

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Wiper Deflector

Start Date: 10/29/13 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 10/29/13 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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190

QC21- Final Inspection - Work Order Release

0.00

\*190\*

QC

Memo

0.00

Quality Control

14-03-3

14-03-03



# Picklist Print

October-29-13 10:17:01 AM

Page 1

Work Order ID: 108918

Parent Item: 649.5112

Parent Item Name: Wiper Deflector

Start Date: 10/29/13

Required Date: 10/29/13

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP REV:A NEW ISSUE 13-10-23 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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M7075T6B6.000X6.000

Purchased

No

f

31.6530

20

7075-T6 BAR 6.000' X 6.000" (order in billets)

Location

Loc Qty

Loc Code

MAT

31.653

m126133

7.483

m126981

24.17

M127539 X 20      m13/11/20  
12.2916

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td style="width: 25%;">Skid-tube <input type="checkbox"/></td> <td style="width: 25%;">Crosstube <input type="checkbox"/></td> <td style="width: 25%;">Water Jet <input type="checkbox"/></td> <td style="width: 25%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

**FAULT CATEGORY**

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03525				SHEET 1 OF 2	
	DWG NO. 649.5100	REV: A	PREPARED BY A. QUAN	DATE: 05/24/12	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.	
	DWG TITLE: WIPER DEFLECTORS					
APPROVED BY: ENGR. <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFFECT NEXT ORDER		
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED PART DIMENSIONS, ADDED RADIUS				

## SHEET 1, ZONE A1 IS:

### NOTES

- 1 MATERIAL ALUMINUM 7075-7651 PER AMS-QQ-A-250/12.
- 2 FINISH: ANODIZE PER MIL STD-A-8625, TYPE III, CLASS 2, COLOR BLACK.  
PRETREAT PROC-DESOTO PR-148 ADHESION PROMOTER,  
PRIME TAW MIL-P-23377J TYPE I CLASS N
- 3 PART CONTROLLED BY CAD MODEL  
FILE NAME: 6495110 WIPER DEFLECTOR.SLDPRT, LAST MODIFIED 12/07/11
- 4 PART CONTROLLED BY CAD MODEL  
FILE NAME: 6495111 WIPER DEFLECTOR.SLDPRT, LAST MODIFIED 04/11/12
- 5 PART CONTROLLED BY CAD MODEL  
FILE NAME: 6495112 WIPER DEFLECTOR.SLDPRT, LAST MODIFIED 05/24/12.
- 6 DEBURR AND BREAK ALL SHARP EDGES.
- 7 IDENTIFY TAW MPP-120. LASER ETCH P/N REVISION. 12 PT. CENTURY GOTHIC

108918 MCT  
13-10-29

IS

DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ BOM

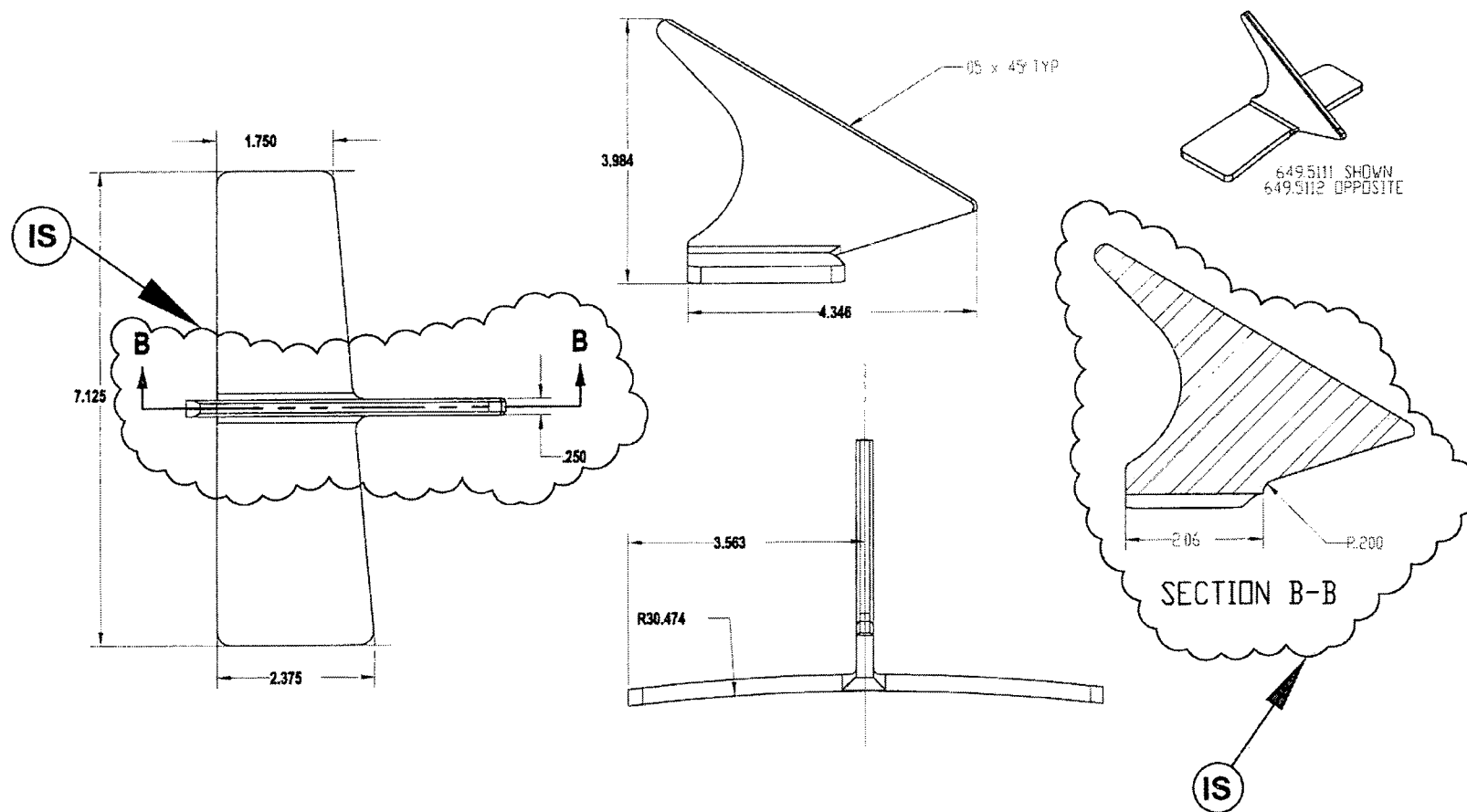
CHANGE CATEGORY  
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED  
☐ YES ☒ NO



108918

**SHEET 2, ZONE B5 IS:**





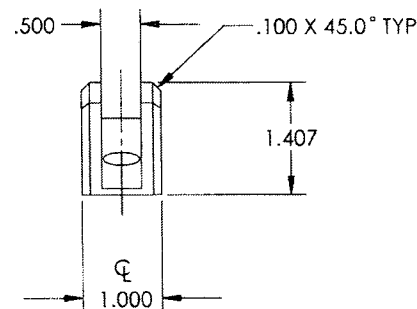
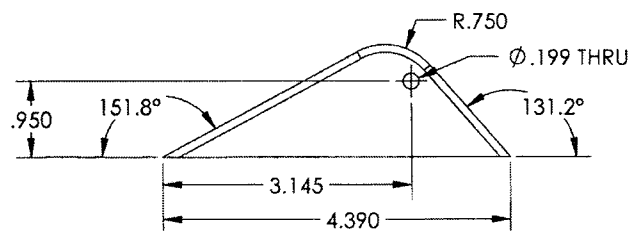
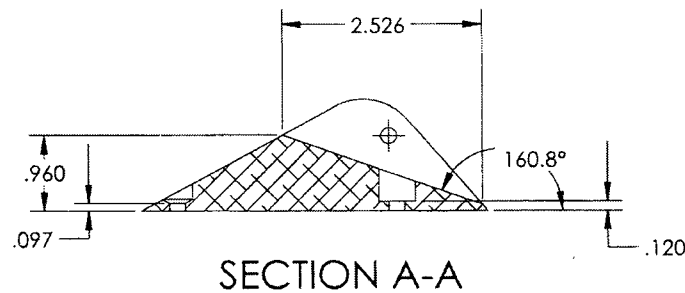
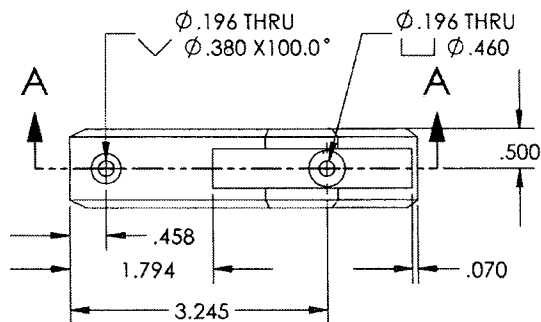
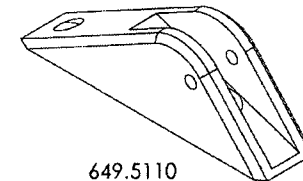
108918

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NOTES:

1. MATERIAL: ALUMINUM 7075-7651 PER AMS-QQ-A-250/12.
2. FINISH: ANODIZE PER MIL-STD-A-8625, TYPE III, CLASS 2, COLOR BLACK; PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER; PRIME IAW MIL-P-23377J TYPE I CLASS N.
3. PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5110 WIPER DEFLECTOR.SLPRT, LAST MODIFIED 12/07/11.
4. PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5111 WIPER DEFLECTOR.SLPRT, LAST MODIFIED 04/11/12.
5. PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5112 WIPER DEFLECTOR.SLPRT, LAST MODIFIED 04/11/12.
6. DEBURR AND BREAK ALL SHARP EDGES.
7. IDENTIFY IAW MPP-120. LASER ETCH P/N REVISION, 12 PT. CENTURY GOTHIC.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	LAST PROTOTYPE REVISION: PP1		HA
N/C	INITIAL RELEASE	12-07-11	P. BRAVO
A	INCORPORATED ECN 03474	04-11-12	P. BRAVO



UNINCORPORATED ECN(S)

03525

3	649.5112	RH WIPER DEFLECTOR	△	△	△
2	649.5111	LH WIPER DEFLECTOR	△	△	△
1	649.5110	WIPER DEFLECTOR	△	△	△
PARTS LIST					
QTY	PART #	DESCRIPTION	MATL	SPEC.	
ORIGINAL DATE 12-07-11 DRAWN BY A. QUAN CHECKED P. BRAVO DRAWING APPROVAL P. BRAVO CONTRACT NO.					
NEXT ASSY (S) 649.4700					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 7 PLACE DECIMAL: ± .01 3 PLACE DECIMAL: ± .005 ANGLE: ± .2°					
APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300					
WIPER DEFLECTORS					
SITE 8	CAGE CODE 07M66	DNCR NO. 649.5100	REV A	SCALE NONE	
				SHEET 1 OF 2	

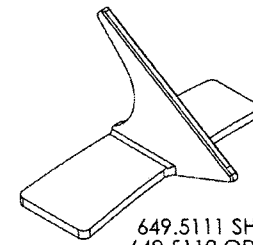
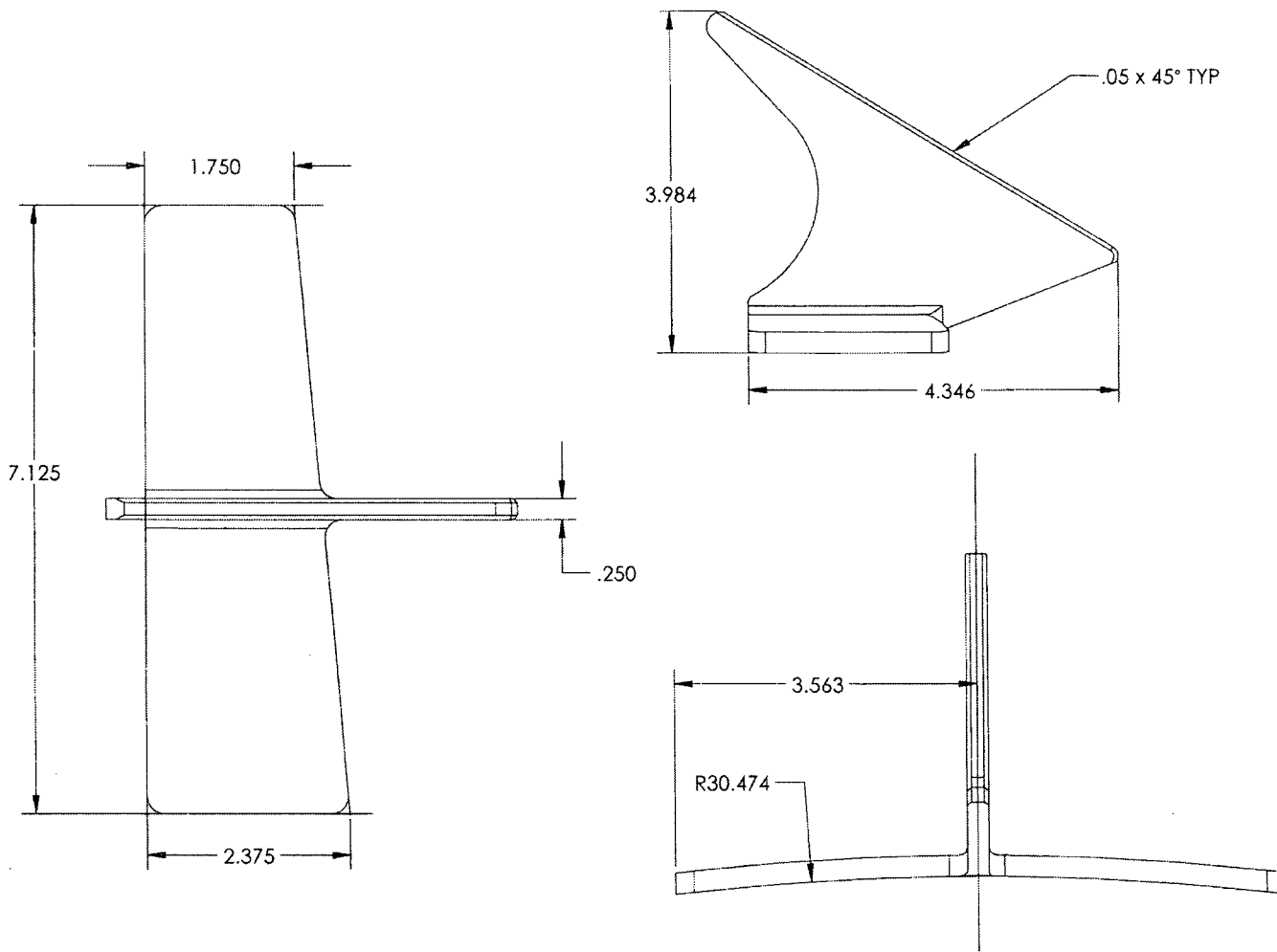




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REV.	DESCRIPTION	DATE	APPROVED



649.5111 SHOWN  
649.5112 OPPOSITE

ORIGINAL DATE (MM/DD/YY)		DATE 11		CHECKED	
DRAWN BY A. QUAN		P. BRAYD		APPROVAL	
CONTRACT NO.					
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.02 3 PLACE DECIMALS ±.005 ANGLES ±.5°					
SHEET	1	OF 2	DATE	NO.	REV
SCALE: NONE			649.5100		A
SHEET					2 OF 2

**APICAL INDUSTRIES**  
2608 TEMPLE HEIGHTS DR.  
OCEANSIDE, CA. 92056-3512 (760)724-5300  
**WIPER DEFLECTORS**





E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610  
RENFREW, ON K7V 4E7  
Canada  
Ph: 613-432-6136  
Fax: 613-432-8212

### Pack List

Number: 116437

Date: 30-Jan-14

#### To

DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
Canada

#### Ship To

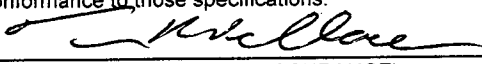
DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
Canada

Ph: 613-632-5200

Fax: 613-632-5246

Ph: 613-632-5200

Fax: 613-632-5246

<b>Terms</b>		<b>Ship Via</b>	
Net 30 days			
<b>Quantity</b>	<b>Description</b>		
18 each	Part: 649.5112 WIPER DEFLECTOR **FAI REQ'D INSPECTION REQ'D PRIOR TO FULFILLING BALANCE OF THE ORDER SO: 16634 Ordered: 19 **LOT #88691 [PHYLLISB - 30/01/2014 9:39:51 AM]	Rev: A PO: PO22172 Line: 5 Backordered: 1 <i>SP14-24</i>	
<p>CERTIFICATE OF COMPLIANCE: "I hereby certify that the material described above is in conformance with applicable physical and dimensional specifications; that it was manufactured in accordance with applicable process specifications; and has been inspected to verify conformance to those specifications."</p> <p> APPROVED SIGNATORY (QUALITY ASSURANCE)</p>			

E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610  
RENFREW, ON K7V 4E7  
Canada  
Ph: 613-432-6136  
Fax: 613-432-8212

## Pack List

Number: 116435

Date: 30-Jan-14

### To

DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
Canada

### Ship To

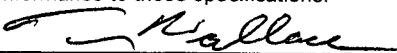
DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
Canada

Ph: 613-632-5200

Fax: 613-632-5246

Ph: 613-632-5200

Fax: 613-632-5246

Terms		Ship Via	
Net 30 days			
Quantity	Description		
1 each	Part: 649.5112 ✓ WIPER DEFLECTOR FAI PC, DART TO APPROVE FOR PRODUCTION SO: 16634 **LOT #88691 [PHYLLISB - 30/01/2014 9:37:10 AM]	Rev: A Line: 5 PO: PO22172	
<p style="text-align: right;">5814-24</p> <p>CERTIFICATE OF COMPLIANCE: "I hereby certify that the material described above is in conformance with applicable physical and dimensional specifications; that it was manufactured in accordance with applicable process specifications; and has been inspected to verify conformance to those specifications."</p> <p> APPROVED SIGNATORY (QUALITY ASSURANCE)</p>			



1. Part Number <b>649.5112</b>		2. Part Name <b>WIPER DEFLECTOR</b>		3. Serial Number <b>N/A</b>	
5. Part Revision Level <b>REV A</b>		6. Drawing Number <b>649.5100</b>		7. Drawing Revision Level <b>REV A</b>	
8. Additional Changes <b>N/A</b>		9. Manufacturing Process Reference <b>88681</b>		10. Organization Name <b>ETM Industries Inc.</b>	
11. Supplier Code <b>N/A</b>		12. P.O. Number <b>PO22172 LINE 5</b>			
13. Detail FAI <input checked="" type="checkbox"/>		14. Full FAI <input checked="" type="checkbox"/>		Baseline Part Number including Revision Level	
Assembly FAI <input type="checkbox"/>		Partial FAI <input type="checkbox"/>			
		Reason for Partial FAI: <b>Not Applicable</b>		<b>N/A</b>	
a) If above part number is a detail part only, go to Field 19 b) If above part number is an assembly, go to the "Index" section below.					
<b>INDEX of part numbers or sub assembly numbers required to make the assembly noted above.</b>					
15. Part Number	16. Part Name	17. Part Serial Number	18. FAI Report Number		
N/A	N/A	N/A	N/A		

1) Signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.	
2) Also indicate if the FAI is complete per Section 5.4: <input checked="" type="checkbox"/> FAI Complete <input type="checkbox"/> FAI Not Complete	
19. Signature MIKE YANTHA	20. Date 1/22/2014
21. Reviewed by	22. Date 31 JAN 14
23. Customer Approval	24. Date

**ETM Industries Inc**

Page 2 of 4

AS9102 Revision A First Article Inspection

Form 2: Product Accountability – Raw Material, Specifications and Special Process(es),  
Functional Testing

1. Part Number <b>649.5112</b>	2. Part Name <b>WIPER DEFLECTOR</b>	3. Serial Number <b>N/A</b>			4. FAI Report Number <b>N/A</b>
5. Material or Process – Name	6. Specification Number	7. Code	8. Special Process Supplier Code	9. Customer Approval Verification (Yes/No/N/A)	10. Certificate of Conformance Number
MATERIAL:	7050-T7651 PER AMS-QQ-A-250/12	N/A	N/A	N/A	CUSTOMER SUPPLIED
PROCESS:	ANODIZE PER MIL-STD-A-8625, TYPE III, CLASS 2, COLOR BLACK	N/A	N/A	N/A	VERDUN CERT #303620-00
PROCESS:	PRIME IAW MIL-P-23377J TYPEI CLASS N	N/A	N/A	N/A	TO BE COMPLETED BY CUSTOMER
PROCESS	IDENTIFY IAW MPP-120 LASER ETCH P/N REVISION 121 PT CENTURY GOTHIC	N/A	N/A	N/A	TO BE COMPLETED BY CUSTOMER
11. Functional Test Procedure Number	12. Acceptance report number, if applicable				
Not Applicable	Not Applicable				
13. Comments					
14. Prepared By: MIKE YANTHA			15. Date 1/22/2014		

1. Part Number <b>649.5112</b>				2. Part Name <b>WIPER DEFLECTOR</b>		3. Serial Number <b>N/A</b>		4. FAI Report <b>N/A</b>	
<b>Characteristic Accountability</b>				<b>Inspection / Test Results</b>					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents		
1	SHEET 2	N/A	7.125	7.1229	CMM	N/A	N/A		
2	SHEET 2	N/A	1.750	1.7508	CMM	N/A	N/A		
3	SHEET 2	N/A	.250	.249-.251	CALIPERS	N/A	N/A		
4	SHEET 2	N/A	R.200 4 PLACES	.2031	RADIUS GAUGE	N/A	N/A		
5	SHEET 2	N/A	2.375	2.3751	CMM	N/A	N/A		
6	SHEET 2	N/A	R.100	.0937	RADIUS GAUGE	N/A	N/A		
7	SHEET 2	N/A	R1.205	1.2065	CMM	N/A	N/A		
8	SHEET 2	N/A	3.984	3.974	HEIGHT GAUGE AND INDICATOR	N/A	N/A		
9	SHEET 2	N/A	R.174	.1718	RADIUS GAUGE	N/A	N/A		
10	SHEET 2	N/A	.05x45°	.047x45°	OPTICAL COMPARATOR	N/A	N/A		
11	SHEET 2	N/A	R.128	.125	RADIUS GAUGE	N/A	N/A		
12	SHEET 2	N/A	R30.474	30.4763	CMM	N/A	N/A		
13	SHEET 2	N/A	3.563	3.559	HEIGHT GAUGE AND INDICATOR	N/A	N/A		

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

 12. Prepared By **MIKE YANTHA**

 13. Date **1/22/2014**



**ETM Industries Inc**AS9102 Revision A First Article Inspection  
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 4 of 4

1. Part Number <b>649.5112</b>				2. Part Name <b>WIPER DEFLECTOR</b>		3. Serial Number <b>N/A</b>		4. FAI Report <b>N/A</b>	
<b>Characteristic Accountability</b>				<b>Inspection / Test Results</b>					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents		
14	SHEET 2	N/A	R.100	.0937	RADIUS GAUGE	N/A	N/A		
15	SHEET 2	N/A	R30.955	30.9582	CMM	N/A	N/A		
16	SHEET 2	N/A	.248	.252	CALIPERS	N/A	N/A		
17	SHEET 2	N/A	4.346	4.344	CALIPERS	N/A	N/A		
18	SHEET 1	N/A	PART CONTROLLED BY CAD MODEL. FILE NAME: 6495110 WIPER DEFLECTOR.SLDPR T, LAST MODIFIED 12/07/11	ACCEPT	VERIFY	N/A	N/A		
19	SHEET 1	N/A	PART CONTROLLED BY CAD MODEL. FILE NAME: 649.5111 WIPER DEFLECTOR.SLDPR T, LAST MODIFIED 04/11/12	ACCEPT	VERIFY	N/A	N/A		
20	SHEET 1	N/A	PART CONTROLLED BY CAD MODEL, FILE NAME: 649.5112 WIPER DEFLECTOR.SLDPR T, LAST MODIFIED 05/24/12	ACCEPT	VERIFY	N/A	N/A		
21	SHEET 1	N/A	DEBURR AND BREAK ALL SHARP EDGES	ACCEPT	VERIFY	N/A	N/A		

The signature indicates that all characteristics are accounted for, meet drawing requirements or are properly documented for disposition.

12. Prepared By **MIKE YANTHA**13. Date **1/22/2014**





**Anodisation Verdun Inc.**  
**Verdun Anodizing Inc.**

3971, ave Verdun, Verdun (Quebec) H4G 1L1

AS 9100:2004

ISO 9001:2000

Certified

info@verdunanodizing.com

Tel: (514) 761-4531

Fax: (514) 769-4731

## CERTIFICATE OF SUB-CONTRACTOR

C  
U  
S  
T  
O  
M  
E  
R  
  
E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610  
RENFREW  
Ontario K7V 4E7

ETM

S  
H  
I  
P  
T  
O  
  
E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610  
RENFREW  
Ontario K7V 4E7

ETM

Customer Order No.	Order Date	Process Date	Certificate No.
98026	23/01/14	28/01/14	303620-00

PROCESS: MIL A-8625F1 TY III C1 2 NOIR No Seal

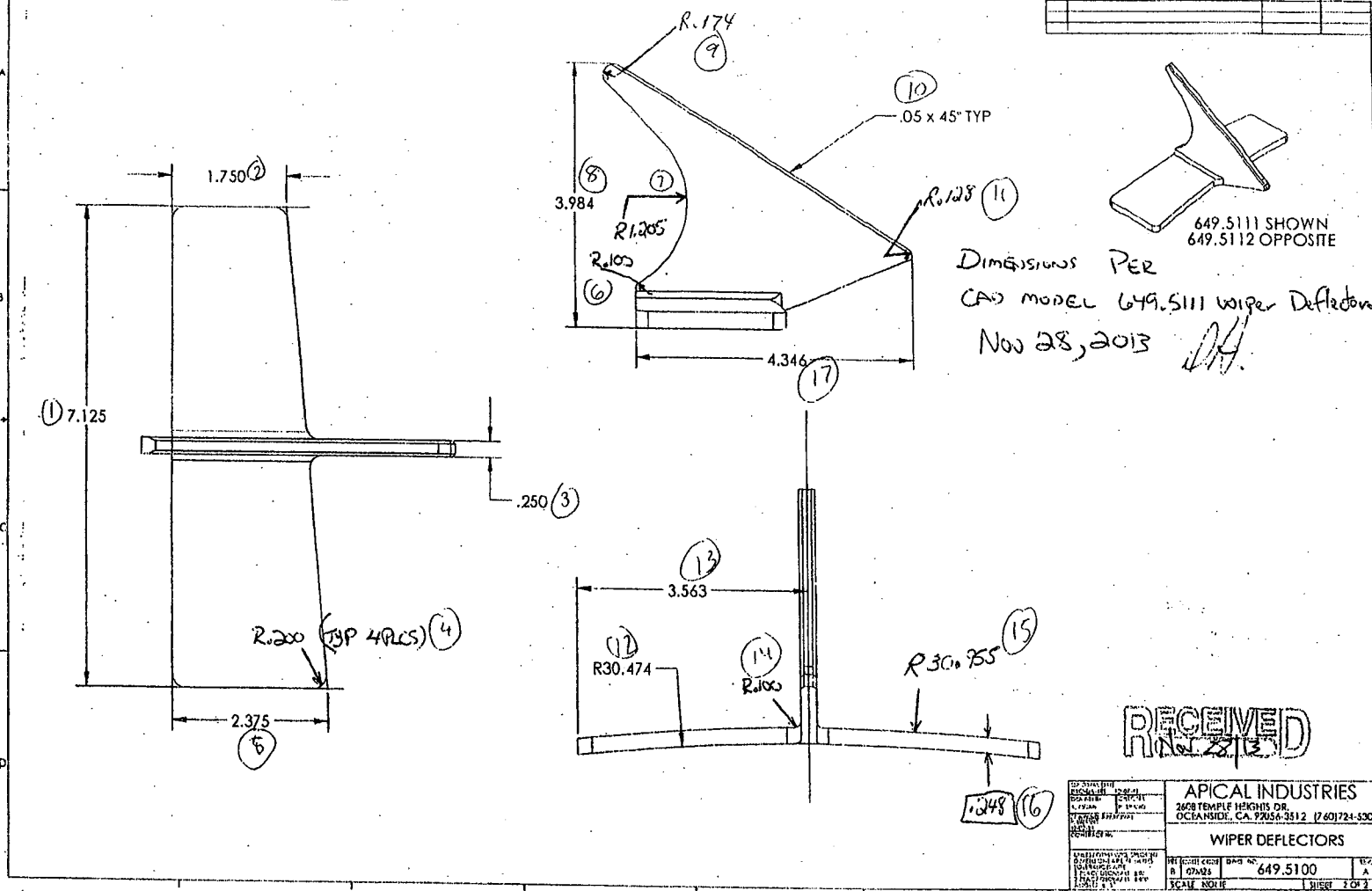
Item No.	Quantity	Description	Serial #
001	20.0	649.5111 LINE:001 LH WIPER REV.A JOB:88682 DUE:29 JAN.14 MAT:7075-T7651	
002	19.0	649-5112 LINE:002 WIPER DEFLECTOR REV.A JOB:88681 DUE:29 JAN.14 MAT:7075-T7651	

We hereby certify that the parts described above and furnished by E.T.M. INDUSTRIES INC. have been treated in accordance with the relevant specifications and that no substitution of materials has been made.

 *Dawn A. Callington*  
Inspector: \_\_\_\_\_ Verdun Anodizing Inc.

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES AND DECIMALS THEREOF. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY.

REV.	DATE	BY	APP.



DIMENSIONS PER  
CAD MODEL 649.5111 WIPER DEFLECTOR DFRPT  
Nov 28, 2013 *DA*

RECEIVED  
NOV 28 2013

APICAL INDUSTRIES	
2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 724-5300	
WIPER DEFLECTORS	
REV. 001	DWG NO. 649.5100
SCALE: NONE	SHEET 2 OF 2



APICAL  
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 03525

SHEET 1 OF 2

DWG NO. 649.5100

REV: A

PREPARED BY  
A. QUAN

DATE: 05/24/12

EFFECT ON DWG  
☐ INC. ☒ UNINC.

DWG TITLE: WIPER DEFLECTORS

APPROVED BY:

ENGR

*[Signature]*

MFG

*[Signature]*

QC

*[Signature]*

EFF:

NEXT ORDER

TRANSACTION CODES (TC):  
A-ADD C-CREATE  
R-REVISE D-DELETE

REASON: REVISED PART DIMENSIONS, ADDED RADIUS

SHEET 1, ZONE A1 IS:

NOTES

- 1 MATERIAL ALUMINUM 7075-7651 PER AMS QQ-A-250/12.  
2 FINISH ANODIZE PER MIL STD-A-8625, TYPE II, CLASS 2, COLOR BLACK.  
PRETREAT PRE-DESOTO PR-148 ADHESION PROMOTER,  
PRIME IAW MIL-P-23277J TYPE I CLASS N

21.1 PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5110 WIPER DEFLECTOR SLDPRT, LAST MODIFIED 12/07/11

21.2 PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5111 WIPER DEFLECTOR SLDPRT, LAST MODIFIED 04/16/12

21.3 PART CONTROLLED BY CAD MODEL  
FILE NAME: 649.5112 WIPER DEFLECTOR SLDPRT, LAST MODIFIED 05/24/12

21.6 DEBURR AND BREAK ALL SHARP EDGES.

7 IDENTIFY IAW APP-120 LASER ETCH P/N REVISION, 12 PT. CENTURY GOTHIC.

- 2.50

IS

RECEIVED  
MAY 24 2012

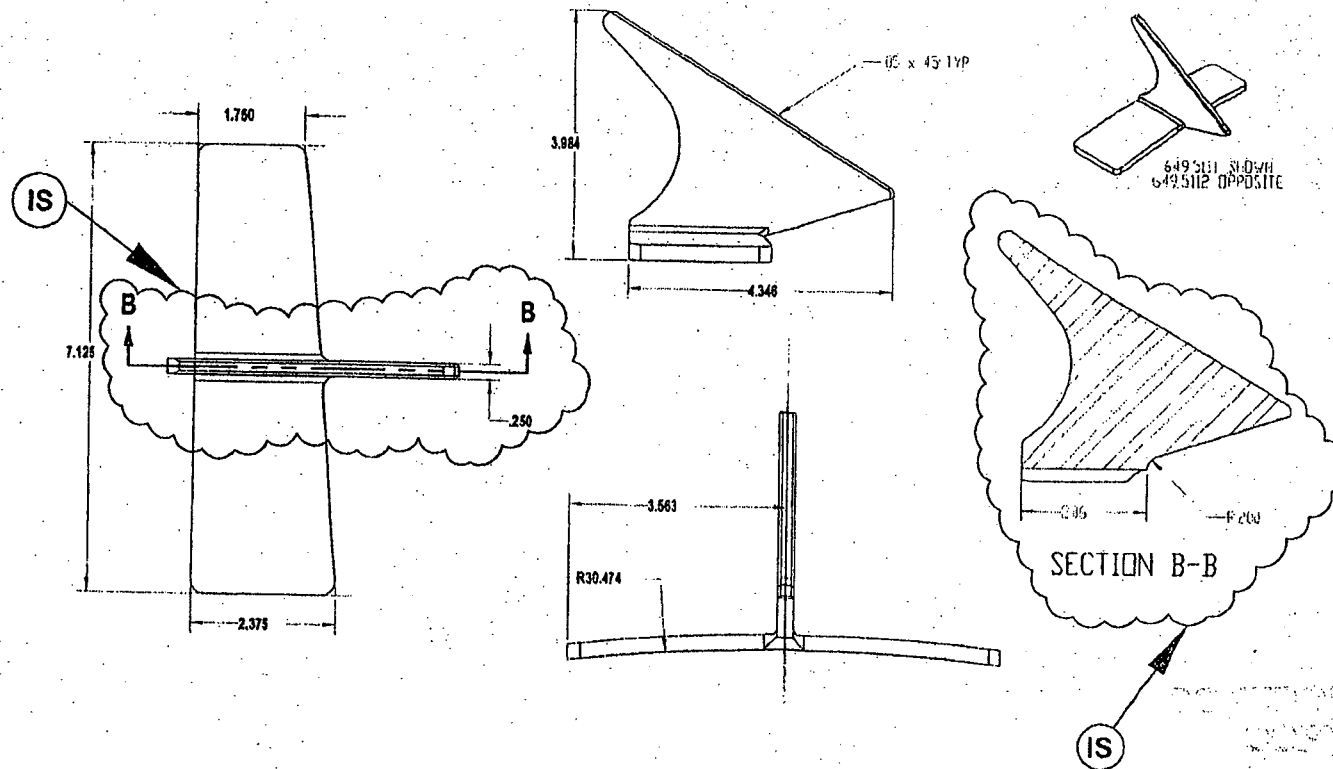
DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ BOM

CHANGE CATEGORY  
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED  
☐ YES ☒ NO

**SHEET 2, ZONE B5 IS:**



RECEIVED  
APR 24 1975



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO22172**

Purchase Order Date 11/25/2013

PO Print Date 1/13/2014

Page Number 1 of 3

**Order From :**

VC-ETM001

**Ship To :** DART AEROSPACE LTD

E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

RENFREW, ONTARIO K7V 4E7  
CANADA

**Contact Name**

**Vendor Phone** 613-432-6136

**Ship To Contact**

**Ship To Phone**

**Ship Via:** FedEx Priority First collect

**Ship Acct:**

**Buyer**

Michael Gregoire

**Customer POID**

**Customer Tax #**

10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
	Line Comments		Promise Date				
	Delivery Comments						

5	649.5112P	Wiper Deflector	1/17/2014		20.00	\$150.00	\$3,000.00
			Yes		Each		
			2/7/2014				

\*\*\*NOTE\*\*\*

Manufacture as per drawing 649.5100 Rev.A  
B108918

\*\*\*\*\*

First Article Inspection required prior to fulfilling balance of the order.

Delivery pushed back due to mechanical failure from 1/17 to 2/4

Line Total: \$3,000.00

6	649.5111P	LH Wiper Deflector	1/17/2014		5.00	\$150.00	\$750.00
			Yes		Each		
			2/7/2014				

\*\*\*NOTE\*\*\*

Manufacture as per drawing 649.5100 Rev.A  
B108786

\*\*\*\*\*

First Article Inspection required prior to fulfilling balance of the order.

Delivery pushed back due to mechanical failure from 1/17 to 2/4

**PO Instructions:** \*\*\*NOTE\*\*\*

7075T6 BAR 6"x6" material supplied

\*\*\*\*\*

Note:

1/13/2014





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

# PURCHASE ORDER

Purchase Order ID PO22172

Purchase Order Date 11/25/2013

PO Print Date 1/13/2014

Page Number 1 of 3

Order From :

VC-ETM001

Ship To : DART AEROSPACE LTD

E.T.M. INDUSTRIES INC.  
310 HALL AVENUE  
BOX 610

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

RENFREW, ONTARIO K7V 4E7  
CANADA

Contact Name

Vendor Phone 613-432-6136

Ship To Contact

Ship To Phone

Ship Via: FedEx Priority First collect

Ship Acct:

Buyer

Michael Gregoire

Customer POID

Customer Tax # 10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
	Line Comments		Promise Date				
	Delivery Comments						

5	649.5112P	Wiper Deflector	1/17/2014		20.00 Each	\$150.00	\$3,000.00
			Yes				
			2/7/2014				

\*\*\*NOTE\*\*\*

Manufacture as per drawing 649.5100 Rev.A  
B108918

\*\*\*\*\*

First Article Inspection required prior to fulfilling balance of the order.

Delivery pushed back due to mechanical failure from 1/17 to 2/4

Line Total: \$3,000.00

6	649.5111P	LH Wiper Deflector	1/17/2014		5.00 ✓ Each	\$150.00	\$750.00
			Yes				
			2/7/2014				

\*\*\*NOTE\*\*\*

Manufacture as per drawing 649.5100 Rev.A  
B108786

\*\*\*\*\*

First Article Inspection required prior to fulfilling balance of the order.

Delivery pushed back due to mechanical failure from 1/17 to 2/4

PO Instructions:

\*\*\*NOTE\*\*\*

7075T6 BAR 6"x6" material supplied

\*\*\*\*\*

Note:

1/13/2014